
FnIO G-Series :

GT-5652

GT-5652 (2CH Differential Output, RS422)

Table of Contents

Table of Contents.....	
History.....	
1. ENVIRONMENT SPECIFICATION.....	
2. GT-5652(2CH Differential Output, RS422).....	
2.1. GT-5652 Specification.....	
2.2. GT-5652 Wiring Diagram.....	
2.3. GT-5652 LED Indicator.....	
2.3.1. LED Indicator.....	
2.3.2 Channel Status LED.....	
2.4. Mapping data from the image table.....	
2.5. Parameter Data.....	
2.6 Example.....	
2.6.1 Exampe of Acceleration Function.....	

History

REV.	PAGES	REMARKS	DATE	Editor
1.00	8	New Document	2019.10.11	Soyeong, Park

1. ENVIRONMENT SPECIFICATION

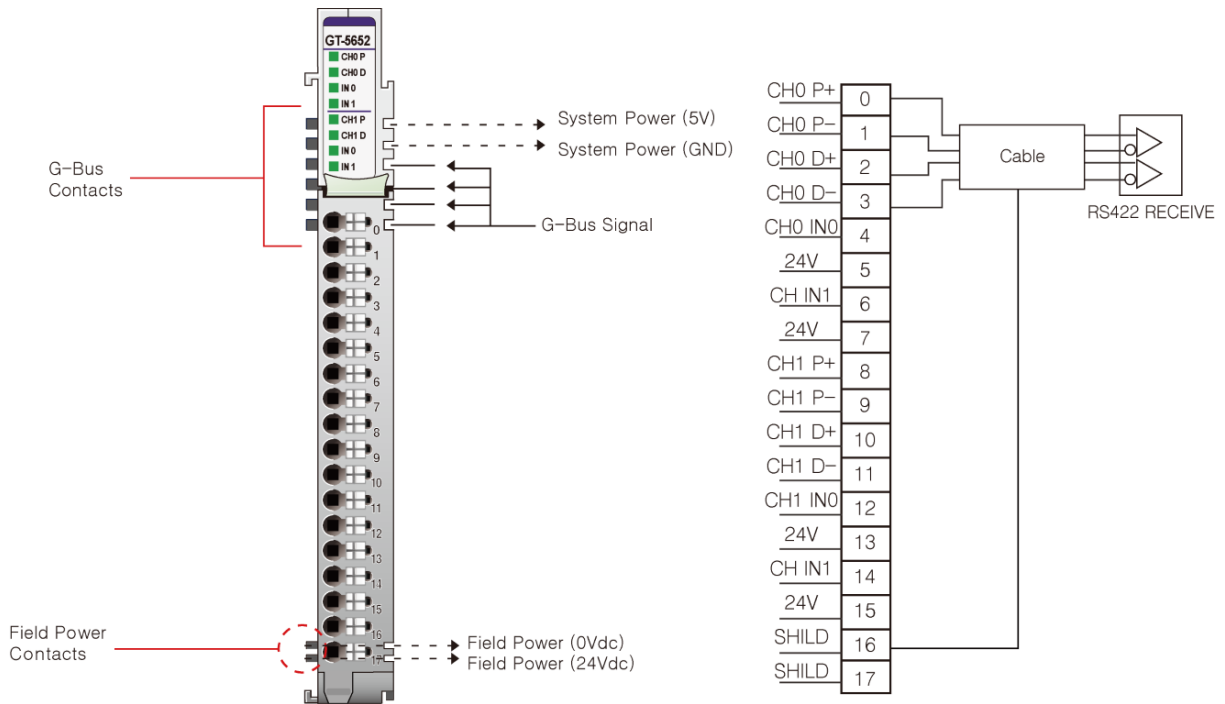
Environmental specification	
Operating Temperature	-40℃~70℃
UL Temperature	-20℃~60℃
Storage Temperature	-40℃~85℃
Relative Humidity	5%~90% non-condensing
Mounting	DIN rail
General Specification	
Chock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 Sine Vibration 5 ~ 25Hz : 1.6mm 25 ~ 300Hz : 4g Sweep Rate : 1 Oct/min, 20 cycles Random Vibration 10 ~ 40Hz : 0.0125g ² /Hz 40 ~ 100Hz : 0.0125 → 0.002g ² /Hz 100 ~ 500Hz : 0.002g ² /Hz 500 ~ 2000Hz : 0.002 → 1.3 x 10 ⁻⁴ g ² /Hz Test time : 1hrs for each test
EMC Resistance	EN 61000-6-2 : 2005 EN 61000-6-4 : 2007+A1:2011
Installation Pos./Protect.Class	Variable/IP20
Product Certifications	CE, UL

2. GT-5652(2CH Differential Output, RS422)

2.1. GT-5652 Specification

Items	Specification
Output Specification	
Number of channel	2 Channels
Number of output	4 RS422 Differential Output (2 Pulse Output, 2 Pulse Direction Output)
Indicators	4 Green LEDs - 2 Green Pulse LEDs - 2 Green Direction LEDs
Output Voltage	RS422 Voltage Level
Pulse output frequency	1-500kHz
Pulse output duty	About 50%
Pulse Output Quantity with One Command	Continuous Pulse Output, Max.+1~-2147483647: Pulse Direction Output OFF Max.-1~-2147483647 : Pulse Direction Output ON
Pulse Output Counter	Signed 32bit-wide
Function	Trapezoidal Acceleration
Protection	Short Protection
Common Type	2 Shield
Digital Input Specification	
Input Per Module	4 Point Sink Type
Indicators	4 Green Terminal Input LEDs
Input On-state Voltage	24Vdc nominal Min. 15Vdc to Max. 32Vdc
Field power OFF-state Voltage	8.0Vdc @25°C
On-State Current	Max. 3.10mA/ point @ 32Vdc
Input Signal Delay	OFF to ON : Max. 0.3ms @24Vdc ON to OFF : Max. 0.3ms @24Vdc
Nominal Input Impedance	10.72KΩ
General Specification	
Power dissipation	Max. 75mA @ 5.0Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field power : Non-Isolation
Field Power	Supply Voltage : 24Vdc nominal Voltage Range : 15~32Vdc Power Dissipation : Max. 10mA @ 24Vdc Except Load
Wiring	I/O Cable Max. 2.0mm ² (AWG 14)
Weight	63g
Module Size	12mm x 109mm x 70mm
Environment Condition	Refer to 'Environment Specification'

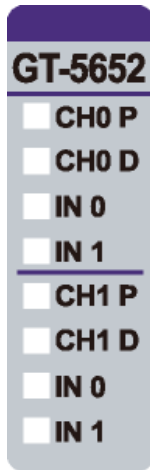
2.2. GT-5652 Wiring Diagram



Pin No.	Signal Description
0	Differential Pulse Output Channel #0 +
1	Differential Pulse Output Channel #0 -
2	Direction Output Channel #0 +
3	Direction Output Channel #0 -
4	Emergency Stop Input Channel #0
5	Field Power 24V, Common
6	Digital Input Channel #0
7	Field Power 24V, Common
8	Differential Output Channel #1 +
9	Differential Output Channel #1 -
10	Direction Output Channel #1 +
11	Direction Output Channel #1 -
12	Emergency Stop Input Channel #1
13	Field Power 24V, Common
14	Digital Input Channel #1
15	Field Power 24V, Common
16	Shield
17	Shield

2.3. GT-5652 LED Indicator

2.3.1. LED Indicator



LED No.	LED Function / Description	LED Color
0	Pulse Output Channel #0	Green
1	Direction Output Channel #0	Green
2	Emergency Stop Input #0	Green
3	Digital Input #0	Green
4	Pulse Output Channel #1	Green
5	Direction Output Channel #1	Green
6	Emergency Stop Input #1	Green
7	Digital Input #1	Green

2.3.2 Channel Status LED

Status	LED	To Indicate
No Signal	Off	Normal Operation
On Signal	Green	Normal Operation

2.4. Mapping data from the image table

● Input Image Value - 10Byte

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Pulse Output Counter CH#0 LL							
Byte 1	Pulse Output Counter CH#0 LH							
Byte 2	Pulse Output Counter CH#0 HL							
Byte 3	Pulse Output Counter CH#0 HH							
Byte 4	Pulse Output Counter CH#1 LL							
Byte 5	Pulse Output Counter CH#1 LH							
Byte 6	Pulse Output Counter CH#1 HL							
Byte 7	Pulse Output Counter CH#1 HH							
Byte 8	Emergency Stop Input CH#0				Digital Input CH#0			
Byte 9	Emergency Stop Input CH#1				Digital Input CH#1			

- A Pulse Output Counter is a signed 32bit-wide data.

- Emergency Stop Input 0,1 : Stop the pulse output, when signal is detected on input channel.

● Output Image Value - 14Byte

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Frequency CH#0 Low Byte							
Byte 1	Frequency CH#0 High Byte							
Byte 2	Frequency CH#1 Low Byte							
Byte 3	Frequency CH#1 High Byte							
Byte 4	Pulse Output Qty CH#0 LL							
Byte 5	Pulse Output Qty CH#0 LH							
Byte 6	Pulse Output Qty CH#0 HL							
Byte 7	Pulse Output Qty CH#0 HH							
Byte 8	Pulse Output Qty CH#1 LL							
Byte 9	Pulse Output Qty CH#1 LH							
Byte 10	Pulse Output Qty CH#1 HL							
Byte 11	Pulse Output Qty CH#1 HH							
Byte 12	RUN0	ECP0	ACC0	CLR0	.	.	Multiple	
Byte 13	RUN1	ECP1	ACC1	CLR1	.	.	Multiple	

- RUNx : Pulse Output Run

- ECPx (Enable Continuous Pulse) : If this bit is '1' and Pulse Output Qty is not 0, pulse output always runs.

- ACCx : Acceleration Function Enable (it does not work when parameter value is 0 or frequency value is less than 3000.)

- CLRx : Clear Real Pulse Output Counter

■ Frequency Multiple Selection

Value	Description
0 (B'00)	x1 Frequency Multiple
1 (B'01)	x10 Frequency Multiple
2 (B'10)	x100Frequency Multiple
3 (B'11)	x1000 Frequency Multiple

- If Pulse Frequency = 123 and Frequency Multiple =2, Real Pulse Output is 12.3KHz (123*100).

2.5. Parameter Data

- Valid Parameter length : 4 Bytes
- Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Acceleration Time CH#0 L							
Byte 1	Acceleration Time CH#0 H							
Byte 2	Acceleration Time CH#1 L							
Byte 3	Acceleration Time CH#1 H							

- The unit is msec. if 1000, then Acceleration Time 1000msec

- The maximum is 10000. (10,000msec = 10sec)

2.6 Example

2.6.1 Example of Acceleration Function

* This Function is available when the frequency is over 3k and the Parameter value is not 0.

- Setting for CH0 (same as CH1)

Frequency			
Byte0 (Low Byte)	0x14	Byte1 (High Byte)	0x00

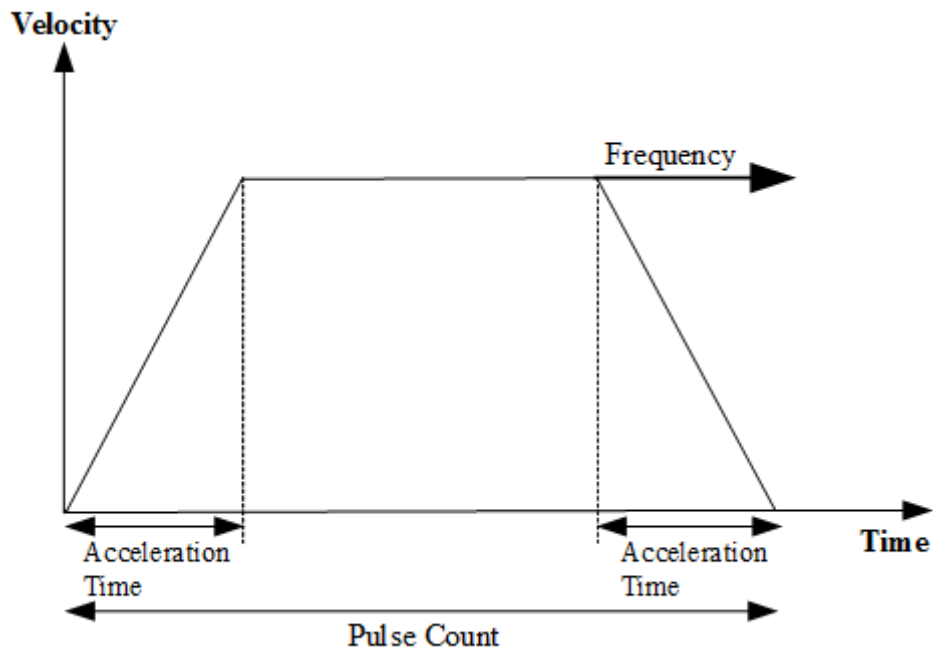
Pulse Output Qty							
Byte4 (LL)	0x50	Byte5 (LH)	0xC3	Byte6 (HL)	0x00	Byte7 (HH)	0x00

Control Byte (Byte 12) = 0xA3							
Bit7(RUN)	Bit6(ECP)	Bit5(ACC)	Bit4(CLR)	Bit3(None)	Bit2(None)	Bit1-0 (Multiple)	
1	0	1	0	.	.	0	3

Parameter (Acceleration Value)			
Byte0 (L)	0xE8	Byte1 (H)	0x03

=> Frequency = 25000 / Pulse Count = 50000 / Acceleration Time = 1,000msec

- Result



※ If the counter value is not sufficient, the maximum velocity may not be reached.